REMARKS

Claim Status

Claims 3-18, 41-45 and 48-50 remain pending in the present application.

Claims 1, 2, 19-40, 46 and 47 have been cancelled without prejudice to prosecuting claims of commensurate scope in a continuing application. Most of these claims have been cancelled merely to simplify issues of this amendment. Cancellation of these claims should in no way be construed as an endorsement of the Office's rejection. Claims 7, 9, 15, 41 and 45 have been amended without prejudice. Indeed, these claims have been amended in an editorial manner and not to overcome the prior art or to correct any formal defects. Claims 3, 48 and 50 have been amended in independent form and generally recite the features of their former base claims. Claim 6 has been amended to now depend from base claim 3.

Applicants submit that no new matter has been added by the above amendments.

Claims 3-16, 18, 41-45 and 48-50 stand rejected as being anticipated by Narayanaswami (U.S. Patent No. 6,504,571). Claim 17 stands rejected as being unpatentable over Narayanaswami in view of Reed (U.S. Patent No. 6,590,996). Applicants respectfully traverse these rejections.

Claim 3 in view of Narayanaswami

Claim 3 recites a method of compiling aerial imagery and generating a map there from. The method segments image data into a plurality of patches, the image data being acquired by an aerial platform. The image data is digitally watermarked to include imagery characteristics corresponding to the image data. The digital watermarking embeds a watermark in each of the plurality of patches, with each of the watermarks including imagery characteristics for its respective patch. The image data is correlated based on the imagery characteristics, and a map is generated from the correlated image data.

The July 29, 2003 Office Action cites Narayanaswami at Col. 1, lines 15-27, Col. 2, lines 1-6, Col. 3, lines 6-13 and 33-50, Col. 4, lines 2-40, Col. 9, lines 23-47 and Col. 11, line 12 through Col. 12, line 22 as teaching segmenting image data into a plurality of patches, in combination with the digital watermarking features recited in claim 3.

Applicants respectfully disagree.

For example, Narayanaswami at the cited passages is not understood to teach or suggest segmenting image data into a plurality of patches, where the image data is digitally watermarked to include imagery characteristics corresponding to the image data, and where the digital watermarking embeds a watermark in each of the plurality of patches, with each of the watermarks including imagery characteristics for its respective patch, in combination with the remaining features of claim 3.

If the Office maintains this rejection, the office is invited to further clarify its position of how it is interpreting Narayanaswami to teach the claimed features, so that this position can be even further explored on appeal.

Applicants respectfully suggest that claim 3 should be allowed.

(It should be appreciated that while specific claim features are discussed in view of Narayanaswami, the allowability of claim 3 does not hinge on isolated elements thereof. Rather, claim 3 is believed patentable because, when viewed as a whole, it defines a combination that is neither anticipated by, nor obvious over, the prior art. For sake of brevity, this position will not be repeated hereafter for each of the claim, although a similar position can be taken.).

Claim 4

Claim 4 recite additional patentable combinations. Each of these claims is believed patentable in its own right, in addition to being variously dependent upon claim 3. For example, claim 4 recites that the correlating includes adjusting image characteristics for at least one of the plurality of patches so that at least two adjacently positioned patches have similar imagery characteristics. The cited passages are not understood to teach or suggest "adjusting" image characteristics (e.g., skew, rotation, scale, resolution, etc.) in the recited manner. Applicants are puzzled by the various citations to FIG. 2 and 3 elements. Again, if the rejection is maintained, clarification is requested.

Claim 7

Claim 7 recites a method of managing aerial imagery. The method includes watermarking patches of the aerial imagery, wherein each patch includes at least one watermark, the at least one watermark including an index; and storing in a database a plurality of data records corresponding to a range of watermark indexes, wherein the data records comprise imagery characteristics.

The office posits that Narayanaswami, at FIG. 1, elements 100 and 134, FIG. 2, element 216, and Col. 8, lines 6-21 teaches or suggests storing in a database a plurality of data records corresponding to a range of watermark indexes, wherein the data records comprise imagery characteristics.

Applicants respectfully disagree.

The cited passages, at best, teach watermarking recorded parameters within each image. But the cited passage are not understood to teach storing in a data base a plurality of record corresponding to a range of watermark indexes, wherein the data records comprise imagery characteristics. For example FIG. 2, element 216 corresponds to an image database and not a database including data records corresponding to a range of watermark indexes.

Applicants respectfully submit that claim 7 should be allowed.

Claim 9

Claim 9 recites a method of generating a geo-spatial map. The method includes steganographically encoding data in the form of a digital watermark component in each of a plurality of image patches, the encoded data including a location indicator, and piecing together the plurality of image patches based at least in part on the encoded location indicator to provide a geo-spatial map including the plurality of image patches.

Applicant disagrees with the Office's position that Narayanaswami teaches, at the cited passages of Col. 3, lines 6-50, Col. 4, lines 2-41, FIG. 2 and FIG. 3, piecing together the plurality of image patches based at least in part on the encoded location indicator. While these passages may suggest retrieving digital images in response to search criteria

and displaying the retrieved digital image, they are not understood to teach or suggest "piecing" together the image patches as recited by the claim 9 combination.

Applicants respectfully submit that claim 9 should be allowed.

Claims 10, 11, 13

Dependent claims 10, 11 and 13 are also believed to recited patentable combinations. For example, claim 10 recites that the location indicator identifies the geo-coordinates of its respective image patch, with each of the plurality of image patches including a unique location identifier representing unique geo-coordinates.

And in claim 11, we recite that at least one of the location indicators identifies the geo-coordinates for at least one corner of its respective patch.

Claim 13 recites that the location indicator identifies the respective patch location within the geo-spatial map relative to at least one adjacent patch. The cited passages are not understood to teach or suggest such a combination.

Favorable consideration is respectfully requested.

Claim 15

Claim 15 recites a method of correlating imagery data generated under a plurality of different conditions. The method includes embedding imagery characteristics in the imagery data; and modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data.

By way of example only, the modification may involve modifying the resolution, scale, skew, rotation, etc. of the imagery data based on the imagery characteristics. (Of course, there are many other modifications that will fall within the scope of claim 15. And this example should in no way limit the scope of claim 15.)

Narayanaswami is cited for modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data (see Office Action at page 7, 10-14 of paragraph 18, citing Col 4., lines 2-6 and 19-31, and Col. 8, lines 6-21).

Applicants respectfully disagree. For example, Narayanaswami at Col. 4 lines 2-6 discusses querying an image archive, and lines 19-31 discusses retrieving digital images

from an image database and accessing a geographic boundary database. And Col. 8, lines 6-21 discusses recorded parameters that may be extracted and compared with originally record parameters for verifying the authenticity of pictures. These passages are not understood to teach or suggest modifying imagery data based on embedded imagery characteristics so as to standardize at least some of the imagery data as recited in claim 15. (The Office's statement of "wherein at least verifying the authenticity of the pictures inherently bears similar results to the standardization means" does not address the recited modifying features as discussed above. Also Narayanaswami, at Col. 8, line 19-21, discusses modifying watermarked data through modification of an image, but not modifying imagery data based on embedded imagery characteristics.)

We respectfully submit that claim 15 should be allowed.

Claim 41

Claim 41 recites a method of making a map. The includes obtaining first geolocation information corresponding to at least a first region to be depicted by the map; and digitally watermarking the first geolocation information in the map, wherein the watermarking step embeds the first geolocation information only in the first region.

Narayanaswami is cited as teaching embedding first geolocation information only in a first region (see Office Action at page 10, lines 5-7 of paragraph 31). Applicants respectfully disagree.

An example presented in our previous amendment is illustrative. One example falling within the scope of claim 41 is a map depicting an airport and a duck pond near the airport. The first region may correspond to the duck pond, and the first geolocation information (e.g., geocoordinates) would then also correspond to the duck pond. Embedding the first geolocation information in the map would then occur only in the area representing the duck pond, and not in a region representing the airport. (Of course, there are many other implementations and examples that will fall within the scope of claim 41. Reciting this example should in no way limit the scope of claim 41.).

Narayanaswami at the cited passages is not understood to embed watermark information only in a first region depicted in a map, where the watermark information corresponds to the first region. For example, Narayanaswami gives examples of location

information (see, e.g., Col. 7, lines 25-30), but fails to connect this information for embedding only in a first region depicted in a map. Instead, at Col. 8, lines 14-16, Narayanaswami merely mentions that recorded parameters can be "watermarked into every captured image," but does not address region based watermarking.

Respectfully, claim 41 should be allowed.

Claim 43

Claim 43 further defines the combinations recited in claims 41 and 42. Claim 42 introduces a step of obtaining second geolocation information corresponding to at least a second region to be depicted by the map and digitally watermarking the second geolocation information in the map. Claim 43 requires that the second geolocation information only be embedded in the second region.

Again, Narayanaswami is not understood to teach or suggest first and second region based watermarking as recited in claim 43. Instead, Narayanaswami seems to embed information "into every captured image."

We respectfully submit that claim 43 should be allowed.

Claims 45 and 50

Applicants disagree with the Office's position that Narayanaswami teaches redundantly watermarking first geovector information in the map (remember that the first geovector information corresponds to at least a first region to be depicted by the map). Instead, Narayanaswami would allow "recorded parameters to be watermarked into every captured image," (see Col. 8, lines 14-16) but does not redundantly watermarking first geovector information throughout a map, in combination with the features of claim 45.

Claim 45 should be allowed.

Claim 50 recites a method of steganographically marking imagery captured from an aerial platform. The method includes obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform; embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark, wherein the first geolocation information is redundantly embedded in the imagery captured from the aerial platform.

Claim 50 should also be allowed.

Claim 48

Claim 48 recites a method of steganographically marking imagery captured from an aerial platform. The method includes obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform; embedding the first geolocation information in the first region in the form of a digital watermark; obtaining second geolocation information corresponding to at least a second region depicted in the imagery captured from the aerial platform and embedding the second geolocation information in the imagery captured from the aerial platform in the form of a digital watermark.

Narayanaswami is not understood to teach or suggest embedding first geolocation information in a first region of an image, and second geolocation information in the same image. Indeed, Narayanaswami at the cited col. 7 and 8 passages seems to only embed one geolocation information per image (e.g., see Col. 7, lines 25-30), not multiple geolocation information per image.

Respectfully, claim 48 should be allowed.

Remaining Dependent Claims

The remaining dependent claims are believed patentable in their own right, in addition to being patentable from dependent upon allowable base claims. (With regards to claim 17, applicants expressly object to the proposed combination as suggested by the office.)

Favorable consideration is requested.

Information Disclosure Statement

An Information Disclosure Statement and Form 1449 accompany this Amendment. Consideration of the documents listed on the Form 1449 is respectfully requested.

Conclusion

The application is believed to be in condition for allowance. An early notice of allowance is respectfully requested. (Applicants need not belabor the other shortcomings of the art at this time.).

Nevertheless, the Examiner is invited to telephone the undersigned at 503-495-4575 if any issue remains.

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Respectfully submitted,

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